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Aflatoxin M₁ contamination of cow's raw milk in different seasons from Qazvin province, Iran



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ABSTRACT

Aflatoxins are extremely teratogenic, mutagenic, toxic, and carcinogenic compounds. In the present study, 60 cow's raw milk samples were collected from Qazvin province, Iran during Dec 2015 till July 2016. Enzyme-linked immunoabsorbent assay (ELISA) was applied to determine Aflatoxin M₁ (AFM₁) in the milk samples. AFM₁ was detected in 34 raw milk samples ranging from 6.25×10^{-3} to 127.87×10^{-3} (part per billion). AFM₁ contents in all positive samples were far below the US legal limit (0.5 ppb), but AFM₁ in 30% of the raw milk samples exceeded the EU legal limit (0.05) and 5% of the samples exceeded the Iran legal limit (0.1 ppb). This study indicates a high occurrence of AFM₁ in cow's raw milk especially in winter (40.71×10^{-3} ppb) but the level of contamination were not significantly different in various seasons ($P < 0.05$). Since contamination of milk with AFM₁ is a potential risk for human health, in order to prevent the repetition, milk and milk products should be controlled periodically. The levels of AFM₁ contamination of milk in the present study showed that continuous examining of milk is necessary to improve public health and reduce consumer exposure to aflatoxins. Reducing the levels of AFB₁ in animal feedstuffs can be regarded as initial step to control the transfer of AFM₁ to the humans.

Key words: Milk, AFM₁, ELISA.

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